Music Store Analysis

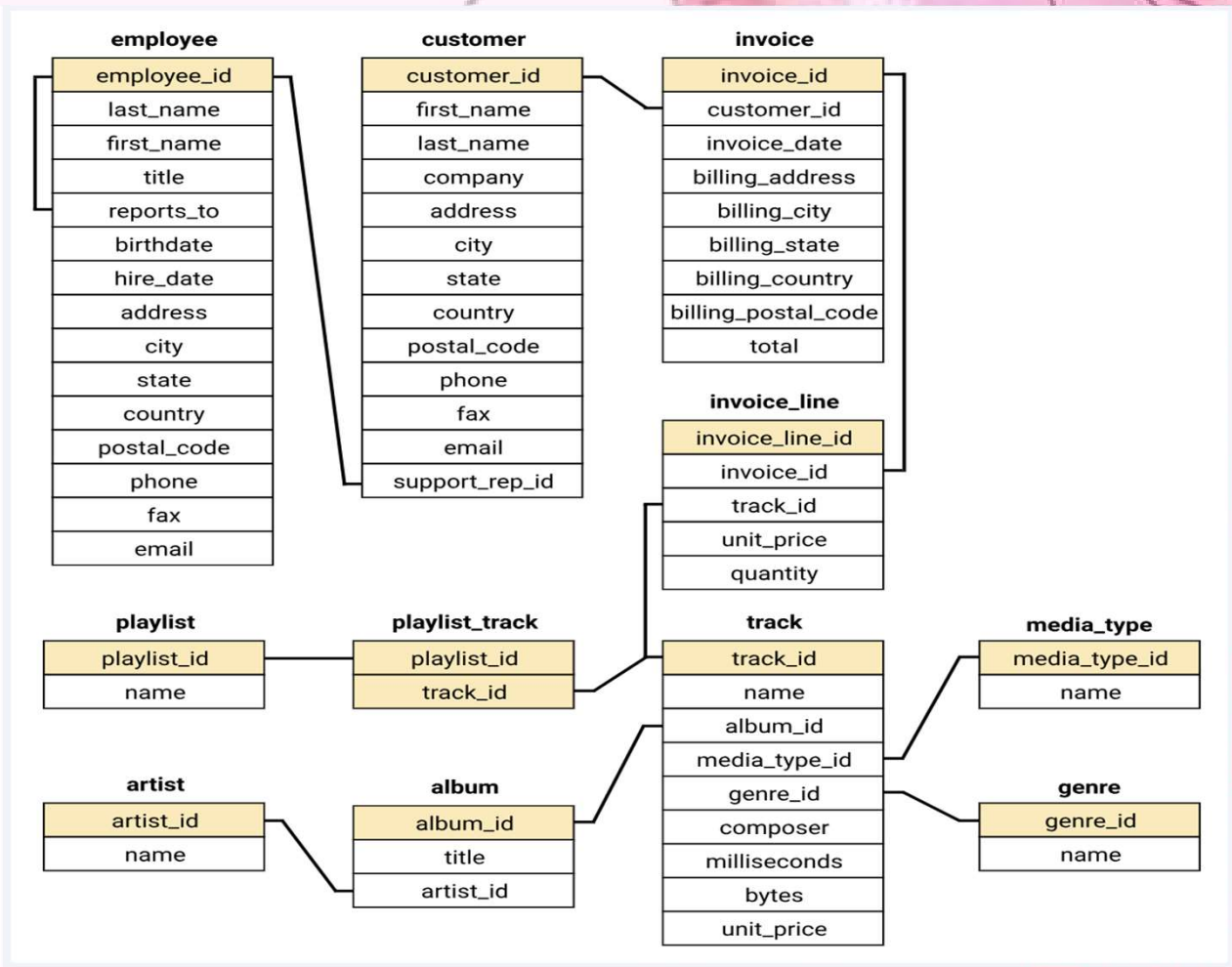
Using SQL

By Vaibhavi. V.S

Objective

Analyze the sales data of a music store to identify key insights that can drive strategic decisions for customer engagement and marketing initiatives. This project aims to determine the top-performing customers, popular music genres by country, and high-revenue cities to support the organization of a music festival and enhance customer loyalty programs.

ER diagram


employee
employee_id
last_name
first_name
title
reports_to
birthdate
hire_date
address
city
state
country
postal_code
phone
fax
email
customer
customer_id
first_name
last_name
company
address
city
state
country
postal_code
phone
fax
email
support_rep_id
invoice
invoice_id
customer_id
invoice_date
billing_address
billing_city
billing_state
billing_country
billing_postal_code
total
invoice_line
invoice_line_id
invoice_id
track_id
unit_price
quantity
playlist
playlist_id
name
playlist_track
playlist_id
track_id
track
track_id
name
album_id
media_type_id
genre_id
composer
milliseconds
bytes
unit_price
media_type
media_type_id
name
genre
genre_id
name
artist
artist_id
name
album
album_id
title
artist_id

Questions

Easy

- Who is the senior most employee based on job title
- Which countries have the most invoices?
- What are the top 3 values of the total invoice?
- Which city has the best customers? We would like to throw a promotional Music Festival in the city where we made the most money.
- Who is the best customer? The customer who has spent the most money will be declared the best customer

Moderate

- Write a query to return the email, first name, last name, and Genre of all Rock Music listeners.
- Let's invite the artists who have written the most rock music in our dataset.
- Return all track names that have a song length longer than the average song length.

Advance

- Find how much amount spent by each customer on artists.
- We want to find out the most popular music Genre for each country. We determine the most popular genre as the genre with the highest amount of purchases.
- Write a query that determines the customer that has spent the most on music for each country

Q1: Who is the senior most employee based on job title?

```sql
select title, last_name, first_name
from `music_store.employee`
order by levels desc
limit 1
```

Query results

JOB INFORMATION | RESULTS | CHART | JSON | EXECUTION DETAILS | EXEC

Row	title	last_name	first_name
1	Senior General Manager	Madan	Mohan

Q2: Which countries have the most Invoices?

```
3  select count(*) as count, billing_country
4  from `music_store.invoice`
5  group by billing_country
6  order by count desc
```

Query results

JOB INFORMATION | RESULTS | CHART | JSON

Row	count	billing_country
1	131	USA
2	76	Canada
3	61	Brazil
4	50	France
5	41	Germany
6	30	Czech Republic
7	29	Portugal
8	28	United Kingdom

Q3: What are the top 3 values of the total invoice?

```
1  select total
2  from `music_store.invoice`
3  order by total desc
4  limit 3
```

Query results

JOB INFORMATION | RESULTS | CHART | JSON

Row	total
1	23.75999999999...
2	19.8
3	19.8

Q4: Which city has the best customers? We would like to throw a promotional Music Festival in the city we made the most money.

```
1  select billing_city,sum(total) as Total_invoice
2  from `music_store.invoice`
3  group by billing_city
4  order by Total_invoice desc
5  limit 1
```

Query results

JOB INFORMATION | RESULTS | CHART | JSON

Row	billing_city	Total_invoice
1	Prague	273.2399999999...

Q5: Who is the best customer? The customer who has spent the most money will be declared the best customer.

```sql
select c.customer_id,c.first_name,c.last_name, sum(total) as total_spending
from `music_store.customer` c
join `music_store.invoice` i on c.customer_id = i.customer_id
group by c.customer_id, c.first_name,c.last_name
order by total_spending desc
limit 1;
```

Query results

JOB INFORMATION | RESULTS | CHART | JSON | EXECUTION DETAILS | EXECUTION GRAPH

Row	customer_id	first_name	last_name	total_spending
1	5	František	Wichterlová	144.5400000000...

Q6: Write query to return the email, first name, last name, & Genre of all Rock Music listeners.

```sql
select distinct email,first_name, last_name
from `music_store.customer` c
join `music_store.invoice` i on c.customer_id = i.customer_id
join `music_store.invoice_line` inl on i.invoice_id = inl.invoice_id
where track_id in(
  select track_id from `music_store.track` t
  join `music_store.genre` g on t.genre_id = g.genre_id
  where g.name like 'Rock'
)
order by email;
```

Query results

JOB INFORMATION | RESULTS | CHART | JSON | EXECUTION DETAILS | EXECUTI

Row	email	first_name	last_name
1	aaronmitchell@yahoo.ca	Aaron	Mitchell
2	alero@uol.com.br	Alexandre	Rocha
3	astrid.gruber@apple.at	Astrid	Gruber
4	bjorn.hansen@yahoo.no	Bjørn	Hansen
5	camille.bernard@yahoo.fr	Camille	Bernard

Q7: Let's invite the artists who have written the most rock music in our dataset.

```sql
select art.artist_id, art.name,count(art.artist_id) as number_of_songs
from `music_store.track` t
join `music_store.album` a on a.album_id = t.album_id
join `music_store.artist` art on art.artist_id = a.artist_id
join `music_store.genre` g on g.genre_id = t.genre_id
where g.name like 'Rock'
group by art.artist_id,art.name
order by number_of_songs desc
limit 10;
```

Query results

JOB INFORMATION | RESULTS | CHART | JSON | EXECUTION DETAILS | EX

Row	artist_id	name	number_of_songs
1	22	Led Zeppelin	114
2	150	U2	112
3	58	Deep Purple	92
4	90	Iron Maiden	81
5	118	Pearl Jam	54
6	152	Van Halen	52
7	51	Queen	45

Q8: Return all the track names that have a song length longer than the average song length.

```sql
select name, milliseconds
from `music_store.track`
where milliseconds > (
  select avg(milliseconds) as avg_track_length
 from `music_store.track` )
order by milliseconds desc;
```

JOB INFORMATION | RESULTS | CHART | JSON | E

Row	name	milliseconds
1	Occupation / Precipice	5286953
2	Through a Looking Glass	5088838
3	Greetings from Earth, Pt. 1	2960293
4	The Man With Nine Lives	2956998
5	Battlestar Galactica, Pt. 2	2956081
6	Battlestar Galactica, Pt. 1	2952702
7	Murder On the Rising Star	2935894
8	Battlestar Galactica, Pt. 3	2927802
9	Take the Celestra	2927677
10	Fire In Space	2926593
11	The Long Patrol	2925008
12	The Magnificent Warriors	2924716
13	The Living Legend, Pt. 1	2924507

Q9: Find how much amount spent by each customer on artists.

```sql
WITH best_selling_artist AS (
  SELECT artist.artist_id AS artist_id, artist.name AS artist_name, SUM(invoice_line.unit_price*invoice_line.quantity) AS total_sales
  FROM `music_store.invoice_line` invoice_line
  JOIN `music_store.track`  track ON track.track_id = invoice_line.track_id
  JOIN `music_store.album` album ON album.album_id = track.album_id
  JOIN `music_store.artist` artist ON artist.artist_id = album.artist_id
  GROUP BY artist.name, artist.artist_id
  ORDER BY 3 DESC
  LIMIT 1
)
SELECT c.customer_id, c.first_name, c.last_name, bsa.artist_name, SUM(il.unit_price*il.quantity) AS amount_spent
FROM `music_store.invoice` i
JOIN `music_store.customer` c ON c.customer_id = i.customer_id
JOIN `music_store.invoice_line` il ON il.invoice_id = i.invoice_id
JOIN `music_store.track` t ON t.track_id = il.track_id
JOIN `music_store.album` alb ON alb.album_id = t.album_id
JOIN best_selling_artist bsa ON bsa.artist_id = alb.artist_id
GROUP BY 1,2,3,4
ORDER BY 5 DESC;
```

Query results

SAVE RESUL

JOB INFORMATION | RESULTS | CHART | JSON | EXECUTION DETAILS | EXECUTION GRAPH

Row	customer_id	first_name	last_name	artist_name	amount_spent
5	41	Marc	Dubois	Queen	11.88
6	53	Phil	Hughes	Queen	11.88
7	47	Lucas	Mancini	Queen	10.89
8	33	Ellie	Sullivan	Queen	10.89
9	20	Dan	Miller	Queen	3.96
10	5	František	Wichterlová	Queen	3.96
11	23	John	Gordon	Queen	2.969999999999...
12	31	Martha	Silk	Queen	2.969999999999...
13	54	Steve	Murray	Queen	2.969999999999...
14	16	Frank	Harris	Queen	1.98

Load more

Q10. We want to find out the most popular music Genre for each country. We determine the most popular genre as the genre with the highest amount of purchases.

```sql
WITH popular_genre AS
(
    SELECT COUNT(invoice_line.quantity) AS purchases, customer.country, genre.name, genre.genre_id,
  ROW_NUMBER() OVER(PARTITION BY customer.country ORDER BY COUNT(invoice_line.quantity) DESC) AS RowNo
    FROM `music_store.invoice_line` invoice_line
  JOIN `music_store.invoice` invoice ON invoice.invoice_id = invoice_line.invoice_id
  JOIN `music_store.customer` customer ON customer.customer_id = invoice.customer_id
  JOIN `music_store.track` track ON track.track_id = invoice_line.track_id
  JOIN `music_store.genre` genre ON genre.genre_id = track.genre_id
  GROUP BY 2,3,4
  ORDER BY 2 ASC, 1 DESC
)
SELECT * FROM popular_genre WHERE RowNo <= 1
```

Query results

JOB INFORMATION | RESULTS | CHART | JSON | EXECUTION DETAILS | EXECUTION GRAPH

Row	purchases	country	name	genre_id	RowNo
1	17	Argentina	Alternative & Punk	4	1
2	34	Australia	Rock	1	1
3	40	Austria	Rock	1	1
4	26	Belgium	Rock	1	1
5	205	Brazil	Rock	1	1
6	333	Canada	Rock	1	1
7	61	Chile	Rock	1	1
8	143	Czech Republic	Rock	1	1
9	24	Denmark	Rock	1	1
10	46	Finland	Rock	1	1
11	211	France	Rock	1	1
12	194	Germany	Rock	1	1

Q11. Write a query that determines the customer that has spent the most on music for each country

```sql
WITH Customter_with_country AS (
    SELECT customer.customer_id,first_name,last_name,billing_country,SUM(total) AS total_spending,
      ROW_NUMBER() OVER(PARTITION BY billing_country ORDER BY SUM(total) DESC) AS RowNo
    FROM `music_store.invoice` invoice
    JOIN `music_store.customer` customer ON customer.customer_id = invoice.customer_id
    GROUP BY 1,2,3,4
    ORDER BY 4 ASC,5 DESC)
SELECT * FROM Customter_with_country WHERE RowNo <= 1
```

Press Alt+F1

Query results

SAVE RESULTS | EXPLO

JOB INFORMATION | RESULTS | CHART | JSON | EXECUTION DETAILS | EXECUTION GRAPH

Row	customer_id	first_name	last_name	billing_country	total_spending	RowNo
1	56	Diego	Gutiérrez	Argentina	39.6	1
2	55	Mark	Taylor	Australia	81.18	1
3	7	Astrid	Gruber	Austria	69.3	1
4	8	Daan	Peeters	Belgium	60.38999999999...	1
5	1	Luís	Gonçalves	Brazil	108.8999999999...	1
6	3	François	Tremblay	Canada	99.99	1
7	57	Luis	Rojas	Chile	97.02000000000...	1
8	5	František	Wichterlová	Czech Republic	144.5400000000...	1

Insights

City with Highest Total Invoices:

- **Insight:** Prague has the highest total invoice amount.
- **Action:** Organize the music festival in Prague.

Best Customer:

- **Insight:** Customer with customer ID 5 has the highest total spending.
- **Action:** Declare the customer as the best customer and consider offering them special privileges or recognition at the festival.

Top Rock Artists:

- **Insight:** Identify the rock artists who have written the most rock music.
- **Action:** Invite these top rock artists to perform at the music festival in Prague.

Top Customer by Country:

- **Insight:** Identify the customer who has spent the most on music in each country.
- **Action:** Recognize these top customers with special offers, rewards, or invitations to exclusive events.

Popular Genre by Country:

- **Insight:** Determine the most popular music genre for each country.
- **Action:** Use this information to curate music and marketing content specific to each country's preferences, which can increase customer engagement and sales